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Fish & Game
Mosquito Control
Columbia

Vancouver, Washington
November 6, 1936

MOSQUITO CONTROL ON THE COLUMBIA NATIONAL FOREST

MT. ADAMS DISTRICT

BY

ANDY ROTH

JUNIOR BIOLOGIST



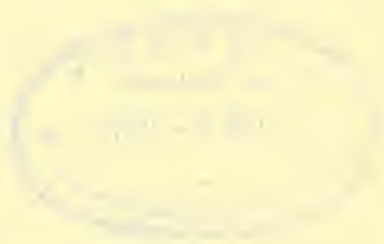
DIRECTION OF K.P.CECIL, SUPERVISOR

COLUMBIA NATIONAL FOREST

VANCOUVER, WASHINGTON

AUGUST 1, 1936

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MOSQUITO CONTROL ON THE MT. ADAMS DISTRICT

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I N T R O D U C T I O N

For the past three years Mosquito Control has been carried on in the Mt. Adams District. Temporary control by oiling was started in 1934. During the 1935 season oiling and permanent control were both carried out with even better control established according to Old Timers. The results of the permanent work done in 1935 has shown a marked reduction in mosquitoes at Twin Buttes during the season of 1936.

Because of the extremely late season and heavy snows, Mosquito Control was not started this year until June 8, 1936.

Approximately 790 gallons of oil were on hand this year for temporary control.

Due to the amount of permanent work accomplished in 1935, only 650 gallons of oil were used this year.

It has been noticed in many areas that larvae were not as plentiful where oiling had been done on potholes and semi permanent lakes during the past three years. This is indicative that oiling does help reduce the numbers some what the following year. No scientific investigations have been made to determine the exact reason for this reduction by oiling.

In the list of permanent work accomplished last year was the erection of a dam across the mouth of large Mosquito Lake and the turning in of a large stream in to the Lake. Raising this lake has increased the lake area from 7 acres to over 22 acres, and it eliminated a great amount of breeding ground. Also it provided a much better fishing lake because of its increased size, it has also lowered the lakes temperature, provides spawning grounds for the fish there. A great many small lakes in this area could be raised and two purposes accomplished at the same time, namely reduction of mosquitoes and providing ideal recreation areas with the very best of fishing for every one.

SUMMARY OF AREAS TREATED

1936

Area # W.T.B. #	Treated Date	Water Acres	Number gals. oil	Suggested Treatment
6 A	6-11-36	$\frac{1}{4}$	5	Ditch 15 ft. long
6 B	6-11	1	15	" 20 ft. "
6 C	6-11	$\frac{1}{4}$	5	" 30 " "
6 D	6-11	$\frac{1}{8}$	14	"
6 E	6-11	1	18	"
6 F	6-11	$\frac{3}{8}$	12	"
6 G	6-11	$\frac{1}{8}$	3	"
6 H	6-11	$\frac{1}{8}$	3	"
6 I	6-12	2	12	"
6 J	6-11	$\frac{1}{4}$	4	"
2 C	6-13	$\frac{1}{4}$	16	"
8 E	6-14	$\frac{1}{4}$	5	" 30 ft. long
9 A	6-14	1	15	" 50 " "
8 H	6-14	$\frac{1}{8}$	3	" 20 " "
8 G	6-14	$\frac{1}{4}$	4	" 50 " "
8 T	6-14	$\frac{1}{8}$	9	" 15 " "
8 J	6-14	$\frac{1}{8}$	4	" 35 " "
8 L	6-14	$\frac{1}{8}$	3	" 50 " "
8 V	6-14	$\frac{1}{4}$	6	" 15 " "
8 W	6-14	$\frac{1}{4}$	4	" 25 " "
2 C	6-16	$\frac{1}{4}$	12	Oiling
4 A	6-16	$\frac{3}{8}$	70	Ditch 2000 ft.
4 D	6-16	$\frac{1}{4}$	3	" 20 Ft.
4 E	6-16	$\frac{1}{4}$	4	" 30 "
4 F	"	$\frac{1}{8}$	2	" 25 "
4 G	"	$\frac{1}{8}$	2	" 10 "
4 H	"	$\frac{1}{8}$	9	" 40 "
4 A	6-17	$\frac{1}{4}$	36	
3 A	6-17	1	18	
3 B	"	$\frac{1}{5}$	4	
3 C	"	$1\frac{1}{5}$	12	
9 F	6-18	$\frac{1}{5}$	4	" 30 ft.
9 E	6-18	$\frac{1}{4}$	6	" 80 "
9 G	"	$\frac{1}{5}$	3	Oiling
9 K	"	$\frac{1}{4}$	4	Ditch 50 ft.
9 I	"	$\frac{1}{8}$	8	" 40 "
9 H	"	$\frac{1}{5}$	3	" 40 " lower 2 ft.
9 J	"	$\frac{1}{4}$	6	" 100 ft.
9 L	"	$\frac{1}{4}$	6	" 150 ft.
8 X	"	$\frac{1}{4}$	5	Oiling
8 Y	"	$\frac{1}{8}$	5	Ditch 100 ft.
8 Z				
2 F	6-19	$1\frac{1}{2}$	30	" 2000 ft.
2 C	"	1	21	" 400 "

AREA # W.T.B. #	Treated Date	Water Acres	Number Gals.Oil	Suggested Treatment
7 A	6-20-36	$\frac{1}{4}$	5	100 of ditches
7 B	6-20	$\frac{1}{4}$	5	75 " "
7 C	6-20	1	20	390 " "
7 D	6-20	$\frac{1}{4}$	5	Oil " "
7 E	6-20	$\frac{1}{4}$	12	400 " "
7 F	6-22	$\frac{1}{4}$	13	1000 " "
7 G	6-22		3	50 " "
7 H	6-22		0	500 " "
7 I	6-22		17	600 " "
7 J	6-22		5	800 " "
7 K	6-22		0	Oil " "
7 L	6-22		5	500 " "
7 M	6-22		10	900 " "
7 N	6-22		7	500 " "
7 O	6-20		25	1000 " "
7 P	6-22		8	
3 D	6-22	2	42	2000 " "
11 A	6-23	$2\frac{1}{4}$	46	2000 " "
3 D	6-23	$\frac{3}{4}$	14	300 " "
8 Y	6-24	$\frac{1}{4}$	8	400 " "
8 Z	6-24	$\frac{1}{4}$	8	150 " "

W.B.C.

1 A	6-24	$\frac{1}{4}$	5	250 " "
1 B	6-24	$1\frac{1}{2}$	18	1500 " "
1 C	6-24	$\frac{1}{4}$	4	500 " "
2 A	6-24	$\frac{1}{4}$	3	80 " "
B	6-24	$\frac{1}{4}$	2	300 " "
4 A	6-24	$\frac{1}{4}$	4	Dam 20 Ditch 500
5 A	6-24	$\frac{1}{4}$	6	Dam 200
6 B	6-24	$1\frac{1}{8}$	3	Ditch 200 Long
2 E	6-24	$\frac{1}{4}$	8	Oiling
2 D	6-24	$\frac{1}{4}$	8	300 ditches

NEW AREAS LOCATED

TWIN BUTTES AREA

CODE NO.	TYPE OF WATER	LOCATION OF	SIZE	DEPTH	BREEDING CONDITION	TYPE SHORE COVER
61	Permanent	West of 6 D -700'	1 acre	4'	Excellent	Alpine
61	Temporary	SW of 6 F-300'	2 "	1'	Excellent	Alpine
8 X	Permanent	NW E of 8 M-600'	1 acre	4'	Fair	Alpine
8Y	Permanent	NW of 8 X-200'	3 acres	5'	Fair	Alpine
8Z	Temporary	Down Indian Trail	1 acre	2'	Excellent	Alpine
61	Temporary	From 8X, 300' Right Side				
6K	Temporary	East of 6 E-1200'	$\frac{1}{4}$ acre	1'	Excellent	Open
6 L	Permanent	West of 6 L 200'	1 acre	2'	Excellent	Open
6 L	Permanent	SE of 6 J 400'	$1\frac{1}{2}$ acres	4'	Fair	Open

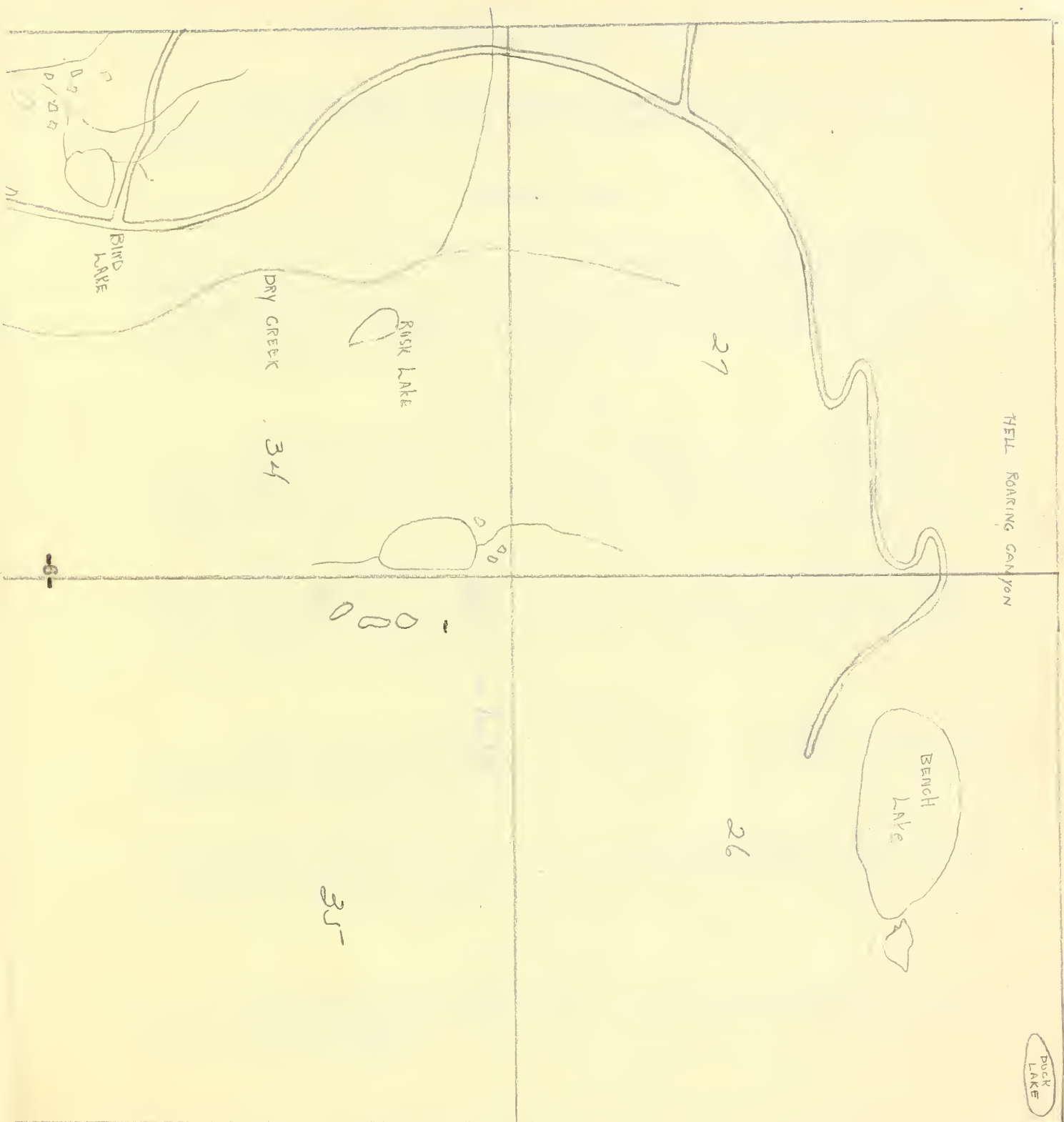
(Refer to Mosquito Survey Maps of 1934)

BIRD CREEK MEADOW AREA

Name of Area	Code	Type of Lake	Size of Lake New	Elev- ation	Depth water	Amount of Breeding	Type of shore cover	Recommended control	Permanent control
Mirror Lk.	1A	Tem. orary	$\frac{1}{4}$ Acre		3'	Excellent	Alpine	Draining	Ditch 250' long
	1B	Potholes	$1\frac{1}{4}$		$1\frac{1}{2}$	Excellent	Open	Draining	Ditches 1500
	1C	Temporary	$\frac{1}{4}$		2	Excellent	Open	Draining	500
Bird Lake	2A	Temporary	$\frac{1}{4}$		1	Excellent	Open	Draining	600'
	2B	Temporary	$1\frac{1}{8}$		6"	Excellent	Open	Draining	300'
Bluff Lk	3A	Temporary	$\frac{1}{4}$		2'	Excellent	Open	Dam	Denning 100' from lake 5 acres
Busk Lk.	4 A	Temporary	$\frac{1}{4}$		3	Excellent	Open	Dam	Dam 20 feet long
Shadow Lk	5A	Permanent	$\frac{1}{4}$		7	Excellent	Open	Dam	Dam 200' long
	5B	Temporary	$\frac{1}{4}$		2"	Excellent	Open	Drain	5 to 6' high Ditch 300'

BIRD CREEK MEADOW AREA

Name of Area	Code No.	Location	Acres of Water Surface	Average Depth	Shore Cover	Type of Bottom	Elevation	Permanent Measures
<u>MIRROR LAKE W.B.C.</u>								
Permanent	1	B.G.M. Road	2	6	Open	Mud	5500	Lake has been raised
Temporary	1A	1/2 S. of 1.	1/4	3	Alpine	Grass	5500	Ditch
Temporary	1B	S.W. 100 ft.	1 1/2	1	Open	Grass	5500	Ditches
Temporary	1C	E. of 1 B	1/2	2	Open	Grass	5500	Ditches
Permanent	2	End of Road	5	20	Alpine	Mud	5600	Lake has been raised
(Pot Holed)	2A	E of Lake	1/8	1	Alpine	Grass	5600	Ditch
Potholes	2B	S.W. of 1	1/8	1	Open	Mud	5600	Ditch
<u>BLUFF LAKE</u>	3	B.C. Trail	2	15	Open	Mud	5700	Lake has inlet
Permanent	3A	Above Lake	1	1	Open	Mud	5800	Dam, 900' form lake of 5 Acres 12' deep
<u>HUSK LAKE</u>	4	Between Bluff & Shadow	1	2	Open	Grass	5500	Rem 20' Ditch in stream 600' from Lake 500 X 150 10 ft. deep
<u>SHADOW LAKE</u>	5	Shadow Lake Trail	5	10'	Open	Mud	5700	Dam 200 feet long form a lake 800 X 400 15' deep
(potholes)	5A							



To whom it concerns:
This map is not correct

PERMANENT MOSQUITO CONTROL & FISHING OPPORTUNITIES

A review of last year's permanent Mosquito Control work shows a very close relationship to better enjoyment of recreation on the Forest.

MOSQUITO LAKES

By raising the water level of Mosquito Lake we find a bigger fishing lake, more fish and of a better color, fatter fish, gamier fish and also spawning grounds. The effect, of the raising, has done away with hundreds of small larvae filled pools and reduced the numbers of adults materially. People will be able to enjoy this form of recreation a great deal more in the following years.

STEAMBOAT LAKE

Steamboat Lake which has a great number of shallow, larva filled pools around its edges the last few years could be very easily raised by the erection of small dam. This would do away with the excessive breeding of mosquitoes, also it would create an ideal fishing lake when raised.

Two years ago Steamboat Lake was planted with fry, this year practically every fish was winter killed, as a result of excessive ice, a lake of oxygen, and a shortage of food. By raising the lake level, this winter killing of fish could never happen. Some 50 big fish were found dead in this lake as late as June 1.

CAYUSE MEADOWS

A dam across the outlet of this meadow would form the largest lake in the entire Mt. Adams district. The flooding of this area would eliminate a huge Mosquito breeding area also.

This proposed lake would be a haven to a great many outdoor people and would certainly combine Mosquito Control and Fishing. This proposed dam would be only 100 ft. long and 25 feet high and form a lake 1 mile long and one half mile wide and 20 feet deep.

MEADOW LAKE

The damming of this lake would cover a large mosquito breeding area and also form an excellent bass fishing lake, which would give the recreationist a variety of fish.

LIST OF MOSQUITO CONTROL EQUIPMENT ON
HAND AT MOSQUITO LAKES GUARD STATION

- 4 (Four) knapsack spray pumps
- 8 (Eight) cans with brass screw caps.
- 4 (Four) feet of rubber hose
- 1 Stillson wrench
- 2 (two) brass faucets
- 1 (one) new type nozzle
- 4 (four) old type nozzles
- 2 (two) hose clamps
- 2 (two) hose connections
- 8 (eight) nozzle connections

Oil left over from season of 1936

130 gallons of oil are stored 30 feet north of Mosquito Guard Station

Bunk house.

RECOMMENDATIONS FOR 1937

1. Early inspection is imperative for this type of work.
2. This must be done by a trained man who has had experience in this work.
3. First inspection should be governed by the seasons and amount of snow.
4. Some time around April 1st. is the approximate time.
5. Six hundred gallons of oil should be ordered and delivered at Mosquito Lakes in 1936.
6. Two (2) ton of ditching powder (50%) should be on hand at the start of the season to do permanent work at the time of oiling. Blasting machine, wire caps, first aid kit, should all be included in this list.
7. One Foreman and 10 oilers and helpers should be included in personnel. One cook included.
8. One truck for transportation of men and supplies.
9. One riding horse for inspection.
10. The work should be continued as long as the rainy season is on.

These recommendations must be carried out if success is wished for the project. If the project is carried out only partially, it should be given up. Attempting to control a large area for mosquito reduction must have complete cooperation of all concerned and the project carried out to the smallest detail. Any variation from the procedure outlined will not help the mosquito situation at Twin Buttes.

SUMMARY OF THE 1936 SEASON

The season of 1936 was not a success or a failure. Excellent work was done the first part of the season up to July. Heavy rains in July added hundreds of small pot holes and millions of mosquitoes hatched. If oiling operations had been continued a very excellent control plan would have been established for this season.

Some very effective work was started in the Bird Creek Meadow Area. Quite a few areas were located and oiled. This area is going to become increasingly important and better control plan must be initiated to give permanent control in that section.

Some acres of water surface was treated during the period of June 11 until June 30 at Twin Buttes. Some acres of water surface was treated during two days of work in the Bird Creek Meadow Area.

Total costs for the work are:

Diesel Oil, 650 gallons at - - - - -	.09	1158.50
Foreman - - - - -		83.33
Labor- 5 CCC men - \$2.00 each - - -	130	1130.00

The necessary equipment is on hand at Mosquito Lakes for the season 1937. If the recommendations for the 1937 season are carried out these supplies should be ordered and taken to Mosquito Lakes.

ANDY ROTH, Junior Biologist

Wild Life Survey

Vancouver, Washington
September 8, 1936

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Fish & Game

Beaver Administration Outline

Columbia

WORKING PLAN FOR BEAVER STUDIES

1. Object of studies.
2. Scope of Plan.
3. Previous information on beaver of Forest.
4. Location of natural stocked beaver colonies
 - a. Estimated number of beaver.
 - b. Geographic distribution.
5. Location of stocked beaver colonies.
 - a. Estimated number of beaver.
6. Location of beaver stocking sites.
 - a. Streams
 - b. Lakes
7. Losses due to predators.
8. Losses due to poachers.
9. Parasites and disease.
10. Food Habits.
 - a. Species available
 - b. Species eaten
 - c. % eaten
11. Notes on life history and habits
 - a. Description
 - b. Types of houses.
12. Relationship of beaver to fishing.
13. The educational and recreational value.
14. Recommendations for a restocking program;
 - a. Type of beaver, species, fur, etc.
 - b. Source of planting stock.
 - c. Order of sites to be planted.
 - d. Tagging studies
 1. Future identification.
 2. Increase in numbers.
 3. Growth studies.(size, weight, fur, sex. etc.)
 4. Life habits of stocked beaver.
 5. Methods used in carrying beaver.
15. Suggested future management plan.
16. Suggested future research studies.
17. Rearing of beaver.
18. Reservoir values.
19. Fire protection.
20. Damage by beavers.
21. Summary.

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22. Pictures.

23. Maps.

ANDY ROTH, Junior Biologist

